THE INVENTION CLAIMED IS

1. A single fiber strand, comprising:

a porous fiber strand having voids, and

at least some of said voids at least partially filled with particles in the size range of 1-500nm.

2. The single fiber strand of claim 1, wherein said particles are at least partially composed of at least one of the following:

a porous material, or

a nanoporous material, or

a nanoporous powdered material, or

a solgel derived material, or

an aerogel-like material, or

an aerogel, or

an inorganic material, or

aggregates of inorganic particle material, or

combinations of said materials.

3. The single fiber strand of claim 1, wherein said particles are at least partially composed of at least one of the following:

an insulating material, or

a thermally insulating material, or

a water repellant material, or

a hydrophobic material, or

a hydrophobic, nanoporous powdered material, or

a hydrophobic silica aerogel, or

other metal oxide aerogels such as alumina, zirconia, tantala, titania, etc., or

laminates of aerogel powder, or

a fire resistant material, or

combinations of said materials.

4. A single fiber made up of multiplicity of smaller single fiber strands, comprising:

a multiplicity of smaller single porous fiber strands having voids,

at least some of said voids at least partially filled with particles in the size range of 1-500nm, and

said multiplicity of smaller single porous fiber strands associated with each other to form a single fiber.

5. The single fiber strand of claim 4, wherein said particles are at least partially composed of at least one of the following:

a porous material, or

a nanoporous material, or

a nanoporous powdered material, or

a solgel derived material, or

an aerogel-like material, or

an aerogel, or

an inorganic material, or

aggregates of inorganic particle material, or

an insulating material, or

a thermally insulating material, or

a water repellant material, or

a hydrophobic material, or

a hydrophobic, nanoporous powdered material, or

a hydrophobic silica aerogel, or

laminates of aerogel powder, or

a fire resistant material, or

combinations of said materials.

6. A single fiber made up of multiplicity of smaller single fiber strands, comprising:

a multiplicity of smaller single porous or non-porous fiber strands having a void volume between said smaller single porous or non-porous fiber strands,

at least a portion of said void volume at least partially filled with particles in the size range of 1-500nm, and

said multiplicity of smaller single porous or non-porous fiber strands associated with each other to form a single fiber.

7. The single fiber made up of multiplicity of smaller single fiber strands, claim 6, wherein said particles are at least partially composed of at least one of the following:

a porous material, or

a nanoporous material, or

a nanoporous powdered material, or

a solgel derived material, or

an aerogel-like material, or

an aerogel, or

an inorganic material, or

aggregates of inorganic particle material, or

an insulating material, or

a thermally insulating material, or

a water repellant material, or

a hydrophobic material, or

a hydrophobic, nanoporous powdered material, or

a hydrophobic silica aerogel, or

other metal oxide aerogels such as alumina, zirconia, tantala, titania, etc., or

a fire resistant material, or

combinations of said materials.

8. A fabric, comprising:

a multiplicity of fibers,

said multiplicity of fibers associated with each other to form said fabric,

said fibers containing a void volume located either in said fibers or between said fibers or both in said fibers and between said fibers , and

at least a portion of said void volume at least partially filled with particles in the size range of 1-500nm.

9. The fabric of claim 8, wherein said particles are at least partially composed of at least one of the following:

a porous material, or

a nanoporous material, or

a nanoporous powdered material, or

a solgel derived material, or

an aerogel-like material, or

an aerogel, or

an inorganic material, or

aggregates of inorganic particle material, or

an insulating material, or

a thermally insulating material, or

a water repellant material, or

a hydrophobic material, or

a hydrophobic, nanoporous powdered material, or

a hydrophobic silica aerogel, or

other metal oxide aerogels such as alumina, zirconia, tantala, titania, etc., or

a fire resistant material, or

combinations of said materials.

10. A method of producing a fiber, comprising the steps of:

providing a porous fiber strand, said porous fiber strand containing voids, and

filling the voids with particles in the size range of 1-500nm.

11. The method of claim 8, wherein said particles are at least partially composed of at least one of the following:

a porous material, or

a nanoporous material, or

a nanoporous powdered material, or

a solgel derived material, or

an aerogel-like material, or

an aerogel, or

an inorganic material, or

aggregates of inorganic particle material, or

an insulating material, or

a thermally insulating material, or

a water repellant material, or

a hydrophobic material, or

a hydrophobic, nanoporous powdered material, or

a hydrophobic silica aerogel, or

laminates of aerogel powder, or

other metal oxide aerogels such as alumina, zirconia, tantala, titania, etc., or

a fire resistant material, or

combinations of said materials.

12. The method of claim 8, including the step of:

filling the voids with a solution which precipitates particles as it dries, or

filling the voids with a solution containing a colloidal suspension of particles which remain when the liquid dries, or

filling the voids with a dry powder by passing the fibers through the powder in a manner in which the particles attach to said fibers, or

filling the voids with a dry powder by passing the powder over said fibers in a manner in which the particles attach to said fibers, or

filling the voids with a dry powder by forcing dry powder to enter the space using rollers, or

filling the voids with a dry powder by forcing dry powder to enter the space using a press, or

combinations of said steps.

13. A method of producing a fiber made up of multiplicity of smaller single fiber strands, comprising the steps of:

providing an assembly of said single fiber strands, said assembly having a void volume between said smaller single fiber strands, and

filling said void volume with particles in the size range of 1-500nm.

14. The method of claim 13, wherein said particles are at least partially composed of at least one of the following:

a porous material, or

a nanoporous material, or

a nanoporous powdered material, or

a solgel derived material, or

an aerogel-like material, or

an aerogel, or

an inorganic material, or

aggregates of inorganic particle material, or

an insulating material, or

a thermally insulating material, or

a water repellant material, or

a hydrophobic material, or

a hydrophobic, nanoporous powdered material, or

a hydrophobic silica aerogel, or

other metal oxide aerogels such as alumina, zirconia, tantala, titania, etc., or

laminates of aerogel powder, or

powder impregnated fabrics, with other fabrics where the aerogel layer provides the physical properties of repellancy, fire resistence, and thermal resistence as well as providing other barrier possibilities by absorption, or

a fire resistant material, or

combinations of said materials.

15. The method of claim 14, including the step of:

filling said void volume with a solution which precipitates particles as it dries, or

filling said void volume with a solution containing a colloidal suspension of particles which remain when said liquid dries, or

filling said void volume with a dry powder by passing said fibers through said powder in a manner in which said particles attach to said fibers, or

filling said void volume with a dry powder by passing said powder over said fibers in a manner in which said particles attach to said fibers, or

filling said void volume with a dry powder by forcing dry powder to enter said space using rollers, or

filling said void volume with a dry powder by forcing dry powder to enter said void volume using a press, or

combination of said steps.

16. A method of producing a fabric, comprising the steps of:

providing a multiplicity of fibers,

positioning said multiplicity of fibers in association with each other to form said fabric,

said fibers containing a void volume located either in said fibers or between said fibers or both in said fibers and between said fibers , and

filling at least a portion of said void volume with particles in the size range of 1-100nm.

17. The method of claim 16, wherein said particles are at least partially composed of at least one of the following:

a porous material, or

a nanoporous material, or

a nanoporous powdered material, or

a solgel derived material, or

an aerogel-like material, or

an aerogel, or

an inorganic material, or

aggregates of inorganic particle material, or

an insulating material, or

a thermally insulating material, or

a water repellant material, or

a hydrophobic material, or

a hydrophobic, nanoporous powdered material, or

a hydrophobic silica aerogel, or

other metal oxide aerogels such as alumina, zirconia, tantala, titania, etc., or

a fire resistant material, or

combinations of said materials.

18. The method of claim 16, including the step of:

filling said void volume with a solution which precipitates particles as it dries, or

filling said void volume with a solution containing a colloidal suspension of particles which remain when said liquid dries, or

filling said void volume with a dry powder by passing said fibers through said powder in a manner in which said particles attach to said fibers, or

filling said void volume with a dry powder by passing said powder over said fibers in a manner in which said particles attach to said fibers, or

filling said void volume with a dry powder by forcing dry powder to enter said space using rollers, or

filling said void volume with a dry powder by forcing dry powder to enter said void volume using a press, or

combination of said steps.